

**ENERGY FACILITY SITE EVALUATION COUNCIL  
P.O. BOX 43172  
OLYMPIA, WASHINGTON 98504-3172**

<b>IN THE MATTER OF:</b>	]	<b>NO. EFSEC/2001-02, AMENDMENT 1</b>
	]	
<b>Sumas Energy 2</b>	]	<b>DRAFT APPROVAL OF THE PREVENTION OF</b>
<b>Generation Facility</b>	]	<b>SIGNIFICANT DETERIORATION AND NOTICE</b>
	]	<b>OF CONSTRUCTION</b>
<b>Sumas Energy 2, Inc.</b>	]	
	]	
<b>Sumas, Washington</b>	]	

EFSEC finds the following pursuant to

the Energy Facility Site Evaluation Council (EFSEC) regulations for

air permit applications (Washington Administrative Code 463-42-385),

General and Operating Permit Regulations for Air Polluting Sources (Washington Administrative Code 463-39),

the Washington Department of Ecology (Ecology) regulations for

new source review (Washington Administrative Code 173-400-110 and Chapter 174-460 WAC),

the federal Prevention of Significant Deterioration regulations (40 CFR 52.21),

the complete Notice of Construction/Prevention of Significant Deterioration Application submitted by Sumas Energy 2, Inc. and

the technical analysis performed by Ecology for EFSEC:

**FINDINGS (Applicable to both the Prevention of Significant Deterioration and Notice of Construction Approval)**

1. On June 1, 2004, Sumas Energy 2, Inc. requested an extension of the original permit, EFSEC/2001-02, to allow initiation of construction any time up to April 17, 2006. EFSEC concluded that:

1.1 Sumas Energy 2, Inc.'s request was timely.

- 1.2 EFSEC's original Best Available Control Technology (BACT) determination for all anticipated pollutants remains valid based upon review of recent federal BACT determinations for similar sources.
  - 1.3 Interim source growth did not affect conclusions from the original permit analysis regarding air quality impact of this project.
2. Sumas Energy 2, Inc. has applied to construct the Sumas Energy 2 Generation Facility (SE2GF) which will be located in Sumas, Washington. The proposed project includes two separate but identical combustion gas turbines, one steam turbine, three electric generators, and two heat recovery steam generators (HRSG). Total power generating capacity is 660 megawatts (MW). Siemens-Westinghouse has been selected as the turbine supplier. Annual emission rates and resulting environmental impacts have been evaluated for the maximum anticipated emissions.
3. The project is subject to federal Prevention of Significant Deterioration (PSD) regulations under Title 40 Code of Federal Regulations (CFR) 52.21 because it is one of 28 listed industries that becomes a "major source," when emitting more than 100 tons per year of any regulated pollutant. Each pollutant emitted above Significant Emission Rate thresholds must satisfy requirements under PSD. As permitted, SE2GF has the potential to emit quantities of nitrogen oxides (NO<sub>x</sub>), particulate matter (PM<sub>10</sub>), volatile organic compounds (VOCs), sulfur dioxide (SO<sub>2</sub>), and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) above the Significant Emission Rate thresholds. In addition, SE2GF has the potential to emit toxic air pollutants in quantities sufficient to require consideration under state new source review regulations.
4. The site of the proposed project is within a Class II area that is in attainment with regard to all pollutants regulated by the National Ambient Air Quality Standards (NAAQS) and state air quality standards. The site is 55 kilometers (km.) from the nearest Class I Area, North Cascades National Park, within 175 km. of four other Class I areas (Alpine Lakes Wilderness, Glacier Peak Wilderness, Olympic National Park, and Pasayten Wilderness), and within one-half mile of the Canadian border.
5. The project is subject to the following requirements:  
  
General and operating permit regulations for air pollution sources chapter 463-39 WAC;  
  
New source review under Chapter 173-400 WAC, Chapter 173-460 WAC, and 40 CFR

52.21;

New source performance standards under 40 CFR 60.40a and 40 CFR 60.330;

Emission monitoring under Chapter 70.94 RCW, Chapter 173-400 WAC, 40 CFR 60 Appendices A, B, and F, and 40 CFR 75;

Gas fuel monitoring under 40 CFR 60.334(b)(2).

6. Sumas Energy 2, Inc.'s prevention of significant deterioration/notice of construction (PSD/NOC) application for the proposed project was determined to be complete on September 5, 2001.
7. The project will use natural gas with a maximum sulfur content that shall not exceed 2 grains per 100 cubic feet on a seven consecutive day average basis, and 1.1 grains per 100 cubic feet on a consecutive 12 month average basis, as fuel.
8. Best available control technology (BACT) as required under WAC 173-400-113 (2) and toxic best available control technology (T-BACT) as required under WAC 173-460-040(4) will be used for the control of all air pollutants which will be emitted by the proposed project.
9. The following have been determined to be BACT for this project:
  - Use of standard dry low NO<sub>x</sub> burners with selective catalytic reduction (SCR) for NO<sub>x</sub> control.
  - Catalytic oxidation for CO control.
  - Good combustion practice, using only natural gas with a maximum sulfur content that shall not exceed 2 grains per 100 cubic feet on a seven consecutive day average basis, and 1.1 grains per 100 cubic feet on a consecutive 12 month average basis, for VOC, PM10, sulfur oxides, and organic toxic air pollutants control.
  - SCR with a 5 ppmdv ammonia slip limit for ammonia control.
10. The facility will have the potential to emit up to 144.5 tons per year of nitrogen oxides (NO<sub>x</sub>).
11. The facility will have the potential to emit up to 88 tons per year of carbon monoxide (CO).
12. The facility will have the potential to emit up to 153 tons per year of volatile organic compounds (VOCs).
13. The facility will have the potential to emit up to 209 tons per year of particulate matter smaller

- than 10 microns (PM<sub>10</sub>, combined filterable and condensable).
14. The facility will have the potential to emit up to 69 tons per year of sulfur oxides (SO<sub>2</sub> and SO<sub>3</sub> or H<sub>2</sub>SO<sub>4</sub> measured as SO<sub>2</sub>).
  15. The facility will have the potential to emit up to 14.3 tons per year of sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>). This has also been counted in Finding # 13, above.
  16. The facility will have the potential to emit 139 tons per year of ammonia.
  17. Ambient concentrations of all of the toxic air pollutants (TAPs) attributable to the facility's operation are projected to be well below the acceptable source impact levels (ASILs) specified in Chapter 173-460 WAC. On the average, anticipated TAP emissions are less than 10% of the ASILs.
  18. Allowable emissions from the new emissions units will not cause or contribute to air pollution in violation of:
    - 17.1. Any ambient air quality standard;
    - 17.2. Any applicable maximum allowable increase over the baseline ambient concentration.
  19. Ambient impact analysis indicates that there will be no significant impacts resulting from pollutant deposition on soils and vegetation in the Class I areas: Alpine Lakes Wilderness, Glacier Peak Wilderness, North Cascades National Park, Olympic National Park, and Pasayten Wilderness, the proposed Class I area, the Mt. Baker Wilderness, or in analogous areas in nearby British Columbia, Canada.
  20. Ambient impact analysis indicates that it is very unlikely that the proposed emissions will cause significant degradation of regional visibility, or impairment of visibility in any Class I area.
  21. No significant effect on industrial, commercial, or residential growth in the Sumas area is anticipated due to the project.
  22. EFSEC finds that all requirements for new source review (NSR) and PSD are satisfied and that as approved below, the new emissions units comply with all applicable federal new source performance standards. Approval of the PSD/NOC application is granted subject to the following conditions.

#### **PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL CONDITIONS**

1. The combustion turbines shall be fueled by natural gas with a maximum sulfur content that shall not exceed:
  - 1.1 2 grains per 100 cubic feet on a seven consecutive day average basis.
  - 1.2 1.1 grains per 100 cubic feet on a consecutive 12 month average basis.
2. The oil fuel fired emergency generator shall not exceed 400 kW and shall not be operated in excess of 500 hours per year. The following records regarding the emergency generator shall be maintained current and kept at the facility:
  - 2.1 Equipment type, make and model, maximum power input/output.
  - 2.2 A monthly log of reason for operation, hours of operation, fuel type, quantity, and sulfur content.
3. The oil fuel fired engine for driving the water pump(s) for emergency fire suppression shall not exceed 300 HP and shall be operated only as needed for its maintenance and for emergency fire suppression. The following records regarding this engine shall be maintained current and kept at the facility:
  - 3.1 Equipment type, make and model, maximum power input/output.
  - 3.2 A monthly log of reason for operation, hours of operation, fuel type, quantity, and sulfur content.
4. Sulfur content at the time of purchase of oil to be used as fuel in the emergency generator and the engine for the fire suppression water pump(s) must conform with the then current limit applied to on-road specification oil as defined in the Code of Federal Regulations (at the time of issuance of this permit, defined in 40 CFR § 80.29(a)(i)).
5. No HRSG stack exhaust shall contain NO<sub>x</sub> emissions that exceed 2.0 parts per million on a dry volumetric basis (ppmdv) over a three hour average when corrected to 15.0 percent oxygen. No HRSG stack exhaust shall exceed daily NO<sub>x</sub> emissions of 179 kilograms (395 pounds). No HRSG stack exhaust shall exceed annual NO<sub>x</sub> emissions of 72 tons.
  - 5.1 Initial performance and compliance for each turbine shall be determined in accordance with Title 40 CFR Part 60, Subpart GG and Appendix A, Reference Method 20, except that the instrument span shall be 6 ppm or less. An alternate method may be

used if approved in advance by EFSEC.

- 5.2 Continuous compliance will be determined by a continuous emission monitoring system (CEMS) that measures and records NO<sub>x</sub> and O<sub>2</sub> emissions from each exhaust stack. The CEMS shall meet the requirements of Prevention of Significant Deterioration Approval Condition 15.2.
- 5.3 Mass emission rates shall be determined using the appropriate procedures outlined in 40 CFR part 60 Appendix A Method 19. An equivalent mass emission rate calculation method may be used if approved in advance by EFSEC.
6. No HRSG stack exhaust shall contain SO<sub>2</sub> emissions that exceed 1.0 parts per million on a dry volumetric basis (ppmdv) over a one hour average when corrected to 15.0 percent oxygen. No HRSG stack exhaust shall exceed daily SO<sub>2</sub> emissions of 86 kilograms (189 pounds).
  - 6.1 Initial performance and compliance for each turbine shall be determined by EPA Reference Method 6C. The instrument span shall be at a maximum of 3 ppm. All span and calibration gases used shall follow in accordance with the method requirements. An alternate method may be used if approved in advance by EFSEC.
  - 6.2 Continuous emission monitoring of SO<sub>2</sub> is not required. Continuous compliance with the limit for each stack shall be by means of fuel sulfur content reporting and fuel flow monitoring to each turbine in accordance with Prevention of Significant Deterioration Approval Conditions 18, 19, and 20, below.
7. No HRSG stack exhaust shall exceed daily VOC emissions of 190 kilograms (420 pounds) calculated as methane.
  - 7.1 Initial performance and compliance for each turbine shall be determined by EPA Reference Method 18. Equivalent test methods may be used if approved in advance by EFSEC.
  - 7.2 Source testing must be conducted annually for the first three years following initial startup to demonstrate continued compliance. Test methods shall be the same as used for the initial performance test unless approved in advance by EFSEC. Initial startup for each combustion turbine is defined as the time when the first electricity from that turbine is delivered to the electrical power grid. Testing thereafter will be once every three years

if the initial performance and subsequent tests satisfy permit limits. Failure of any source test to meet permit limits starts the three year annual test cycle over.

- 7.3 Mass emissions for compliance determination shall be calculated using the appropriate data from the most recent source test. Mass emission rates shall be determined using the procedures outlined in 40 CFR part 60 Appendix A Method 19, adapted to VOCs measured as methane. Equivalent mass emission rate calculation methods may be used if approved in advance by EFSEC.
8. No HRSG stack exhaust shall exceed daily filterable  $PM_{10}$  emissions of 88 kilograms (194 pounds).
  - 8.1 Initial performance and compliance with the particulate standard shall be determined by federal Reference Methods 201 or 201A based on the filterable portion (“front half”) of the test method capture. Equivalent concentration test methods may be used if approved in advance by EFSEC.
  - 8.2 Source testing must be conducted annually for the first three years following initial startup to demonstrate continued compliance. Test methods shall be the same as used for the initial performance test unless approved in advance by EFSEC. Initial startup for each combustion turbine is defined as the time when the first electricity from that turbine is delivered to the electrical power grid. Testing thereafter will be once every three years if the initial performance and subsequent tests satisfy permit limits. Failure of any source test to meet permit limits starts the three year annual test cycle over.
  - 8.3 Mass emissions for compliance determination shall be calculated using the appropriate data from the most recent source test. Mass emission rates shall be determined using the appropriate procedures outlined in 40 CFR part 60 Appendix A Method 19. Equivalent mass emission rate calculation methods may be used if approved in advance by EFSEC.
9. No HRSG stack exhaust shall exceed daily total  $PM_{10}$  emissions of 260 kilograms (573 pounds).
  - 9.1 Initial performance and compliance with the particulate standard shall be determined by summing the results of federal Reference Methods 201 (or 201A) and 202. Equivalent concentration test methods may be used if approved in advance by EFSEC.

- 9.2 Source testing must be conducted once every three years following initial startup to demonstrate continued compliance. Test methods shall be the same as used for the initial performance test unless approved in advance by EFSEC. Initial startup for each combustion turbine is defined as the time when the first electricity from that turbine is delivered to the electrical power grid.
  - 9.3 Mass emissions for compliance determination shall be calculated using the appropriate data from the most recent source test. Mass emission rates shall be determined using the appropriate procedures outlined in 40 CFR part 60 Appendix A Method 19. Equivalent mass emission rate calculation methods may be used if approved in advance by EFSEC.
10. No HRSG stack exhaust shall exceed daily  $\text{H}_2\text{SO}_4$  emissions of 17.7 kilograms (39 pounds).
  - 10.1 Initial performance and compliance with the  $\text{H}_2\text{SO}_4$  emissions limits shall be determined by EPA Reference Method 8 with incorporation of the procedures given in EPA Reference Method 6, Section 7.3 for elimination of ammonia interference, or an equivalent method approved in advance by EFSEC.
  - 10.2 Source testing must be conducted annually for the first three years following initial startup to demonstrate continued compliance. Test methods shall be the same as used for the initial performance test unless approved in advance by EFSEC. Initial startup for each combustion turbine is defined as the time when the first electricity from that turbine is delivered to the electrical power grid. Testing thereafter will be once every three years if the initial performance and subsequent tests satisfy permit limits. Failure of any source test to meet permit limits restarts the three year annual test cycle.
  - 10.3 Mass emissions for compliance determination shall be calculated using the appropriate data from the most recent source test. Mass emission rates shall be determined using the procedures outlined in 40 CFR part 60 Appendix A Method 19, adapted to  $\text{H}_2\text{SO}_4$ . Equivalent mass emission rate calculation methods may be used if approved in advance by EFSEC.
11. Startup and shutdown operation:
  - 11.1 Startup is defined as any operating period that is ramping up from less than partial load (70%), and ends when the operating rate has exceeded partial load (70%), and the



earlier of these events occurs:

11.1.1 Normal operating temperatures have been reached in both the catalytic oxidation and selective catalytic reduction modules as indicated by the manufacturer's operating manual.

11.1.2 One of the following time limits have been reached, as applicable:

11.1.2.1 Six hours have elapsed since fuel was first introduced to the applicable turbine on a cold startup. A cold startup is any startup occurring after the applicable turbine has been shut down for seventy-one hours or more.

11.1.2.2 Two and one-half hours elapsed since fuel was first introduced to the applicable turbine on a warm startup. A warm startup is any startup occurring after the applicable turbine has been shut down for more than eight hours but less than seventy-one hours.

11.1.2.3 One and one-half hours have elapsed since fuel was first introduced to or the beginning of the ramp-up of the applicable turbine on a hot startup. A hot startup is any startup occurring after the applicable turbine has been shut down for eight hours or less.

11.2 Shutdown is defined as any operating period for which all the following are occurring:

11.2.1 The system is ramping down from normal operation. Normal operation is defined as operation between 70% and 100% of turbine power generation capacity.

11.2.2 The system is at less than partial load (70%).

11.2.3 Either the catalytic oxidation or selective catalytic reduction systems are below the normal operating temperature range indicated by the manufacturer's operating manual.

Shutdown ends when the fuel feed to the system ceases.

11.3 Emission limits for NO<sub>x</sub> during startup and shutdown:

11.3.1 For purposes of compliance with NO<sub>x</sub> emission limits, startup or shutdown

operation exists only when the selective catalytic reduction system is below the normal operating temperature range indicated by the manufacturer's operating manual.

11.3.2 The limit on the three hour average NO<sub>x</sub> concentration and daily NO<sub>x</sub> mass emissions from each HRSG stack exhaust are relieved.

11.3.3 The continuous emissions monitor (CEM) for NO<sub>x</sub> shall be operated during startup and shutdown periods. Total mass emissions as determined from the CEM readings shall be included in determination of compliance with the annual NO<sub>x</sub> mass emission limit in Condition 5.

11.4 Emission limits for SO<sub>2</sub> during startup and shutdown:

11.4.1 The limit on the one hour average SO<sub>2</sub> concentration from each HRSG stack exhaust is relieved.

11.4.2 Mass SO<sub>2</sub> emissions during startup and shutdown shall be determined from the sulfur content of the fuel consumed assuming all sulfur is emitted as sulfur dioxide.

11.4.3 Mass SO<sub>2</sub> emissions during startup and shutdown shall be included in determination of compliance with the daily SO<sub>2</sub> mass emission limit in Condition 6.

11.5 Emission limits for VOCs during startup and shutdown:

11.5.1 VOC mass emission rates from each HRSG stack exhaust during startup and shutdown shall be calculated from fuel consumption rates using the following equations up to the partial load (70% of capacity) operating level:

$$\text{Lbs./hr. VOCs from the turbine} = 11.87 - 0.00483 * x_1$$

$$\text{Lbs./hr. VOCs from the duct burner} = 60.3 - 0.1 * x_2$$

where  $x_1$  = million Btus/hr. fuel consumption (higher heating value, HHV) by the turbine,  $x_1 > 0$ , and

$x_2$  = million Btus/hr. fuel consumption (HHV) by the duct burner,  $x_2 > 0$ .

11.5.2 The VOC mass emission rates during startup and shutdown shall be integrated

to determine total VOC mass emissions, and included in determination of compliance with the daily VOC mass emission limit in Condition 7.

11.6 Emission limits for  $PM_{10}$  during startup and shutdown.

11.6.1 The individual filterable mass emission limit is relieved.

11.6.2 Total  $PM_{10}$  mass emission rates during startup and shutdown shall be calculated from fuel consumption rates using the following equation up to the partial load (70% of capacity) operating level:

$$\text{Lbs./hr. } PM_{10} = 0.0074 * x + 5.5 * [1 - \exp(-.001818 * x)]$$

where x = million Btus/hr. fuel consumption (HHV) turbine and duct burner combined

11.6.3 The  $PM_{10}$  mass emission rates during startup and shutdown shall be integrated to determine total  $PM_{10}$  mass emissions, and included with the total  $PM_{10}$  mass emissions during normal operation to determine compliance with the daily  $PM_{10}$  mass emission limit in condition 9.

11.7 Emission limits for  $H_2SO_4$  during startup and shutdown:

11.7.1 Mass  $H_2SO_4$  emissions during startup and shutdown shall be determined from the sulfur content of the fuel consumed assuming 13.5 % of the sulfur is emitted as  $H_2SO_4$ .

11.7.2 Mass  $H_2SO_4$  emissions during startup and shutdown shall be included in determination of compliance with the daily  $H_2SO_4$  mass emission limit in Condition 10.

12. Within 180 days after initial start-up of each turbine, SE2GF shall conduct performance tests for  $NO_X$ ,  $SO_2$ ,  $H_2SO_4$ , CO, VOCs and  $PM_{10}$  on each combustion turbine.

12.1 The performance tests shall be performed by an independent testing firm.

12.2 A test plan shall be submitted for EFSEC's approval at least 30 days prior to the testing.

13. Sampling ports and platforms shall be provided on each stack, after the final pollution control device. The ports shall meet the requirements of 40 CFR, Part 60, Appendix A Method 20.

14. Adequate permanent and safe access to the test ports shall be provided. Other arrangements may be acceptable if approved by EFSEC prior to installation.
15. Continuous Emission Monitoring Systems
  - 15.1 Continuous emission monitoring systems (CEMS) for CO, shall satisfy the requirements contained in 40 CFR, Part 60, Appendix B, Performance Specifications and 40 CFR, Part 60, Appendix F, Quality Assurance Procedures.
  - 15.2 CEMS for NO<sub>x</sub>, O<sub>2</sub>, and exhaust gas flow rate or velocity compliance shall satisfy the requirements contained in 40 CFR 75, Emissions Monitoring.
  - 15.3 Use of velocity factors from 40 CFR, Part 60, Appendix A, Method 19 shall satisfy the requirements for determining exhaust gas flow rate or velocity compliance contained in 40 CFR 75, Emissions Monitoring.
16. Source testing for PM<sub>10</sub>, VOCs, and H<sub>2</sub>SO<sub>4</sub> is to coincide with the Relative Accuracy Test Audit required for each installed CEMS.
17. CEMS and process data shall be reported in written form to the authorized representative of EFSEC and to the EPA Region X Office of Air Quality within thirty days of the end of each calendar month (unless a different report form/format, testing and reporting schedule has been approved by EFSEC) which shall include but not be limited to the following:
  - 17.1 Quantity and average sulfur content of natural gas burned as substantiated by purchase records and vendor's report. Fuel sulfur content determination shall follow procedures outlined in 40 CFR 60.335(d) and (e).
  - 17.2 For each stack, the daily average NO<sub>x</sub> and CO concentrations, in ppm<sub>dv</sub> corrected to 15% oxygen.
  - 17.3 For the project, total mass emissions of NO<sub>x</sub> and CO on daily (pounds per day) and twelve month moving total (tons per year) bases.
  - 17.4 The duration and nature of any monitor down-time excluding zero and span checks.
  - 17.5 Results of any monitor audits or accuracy checks.
  - 17.6 Results of any required stack tests.
  - 17.7 The above data shall be retained at the SE2GF site for a period of five years.

18. The format of the reporting described in Condition 17 shall match that required by EPA for demonstrating compliance with the Title IV Acid Rain program reporting requirements. Pollutants not covered by that format shall be reported in a format approved by EFSEC that shall include at least the following:
  - 18.1 Process or control equipment operating parameters.
  - 18.2 The hourly maximum and average concentration, in the units of the standard, for each pollutant monitored.
  - 18.3 The duration and nature of any monitor down time.
  - 18.4 Results of any monitor audits or accuracy checks.
  - 18.5 Results of any required stack tests.
19. For each occurrence of monitored emissions in excess of the standard, the monthly emissions report (per Prevention of Significant Deterioration Approval Condition 17) shall include the following:
  - 19.1 For parameters subject to monitoring and reporting under the Title IV Acid Rain program, the reporting requirements in that program shall govern excess emissions report content.
  - 19.2 For all other pollutants:
    - 19.2.1 The time of the occurrence.
    - 19.2.2 Magnitude of the emission or process parameters excess.
    - 19.2.3 The duration of the excess.
    - 19.2.4 The probable cause.
    - 19.2.5 Corrective actions taken or planned.
    - 19.2.6 Any other agency contacted.
20. Operating and maintenance manuals for all equipment that has the potential to affect emissions to the atmosphere shall be developed and followed.
  - 20.1 Copies of the manuals shall be available to EFSEC or the authorized representative of EFSEC.

- 20.2 Emissions that result from a failure to follow the requirements of the manuals may be considered proof that the equipment was not properly operated and maintained.
21. Operation of the equipment that has the potential to affect the quantity and nature of emissions to the atmosphere must be conducted in compliance with all data and specifications submitted as part of the PSD/NOC application unless otherwise approved by EFSEC.
22. This approval shall become invalid if construction of the project is not commenced on or before April 17, 2006, or if construction of the facility is discontinued for a period of eighteen (18) months, unless EFSEC extends the deadline upon a satisfactory showing that an extension is justified, pursuant to 40 CFR 52.21(r)(2) and applicable EPA guidance.
23. Any activity that is undertaken by SE2GF or others, in a manner that is inconsistent with the application and this determination, shall be subject to EFSEC enforcement under applicable regulations. Nothing in this determination shall be construed so as to relieve SE2GF of its obligations under any state, local, or federal laws or regulations.
24. The SE2GF shall notify EFSEC in writing at least thirty days prior to start-up of the project.
25. Access to the source by EFSEC, the U.S. Environmental Protection Agency or the authorized representative of EFSEC shall be permitted upon request for the purpose of compliance assurance inspections. Failure to allow access is grounds for action under the federal Clean Air Act and the Washington Clean Air Act.

This Prevention of Significant Deterioration Permit has been Reviewed by:

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Bernard Brady, P.E.  
Engineering and Technical Services  
Washington Department of Ecology

\_\_\_\_\_  
Date

This Prevention of Significant Deterioration Permit has been Approved by:

\_\_\_\_\_  
Richard Albright  
Director, Office of Air, Waste and Toxics  
U.S. Environmental Protection Agency, Region X

\_\_\_\_\_  
Date

\_\_\_\_\_  
James Oliver Luce  
Chair  
Energy Facility Site Evaluation Council

\_\_\_\_\_  
Date

## **NOTICE OF CONSTRUCTION APPROVAL CONDITIONS**

1. SE2GF will comply with all Prevention of Significant Deterioration approval conditions specified above.
2. Total emissions of free  $\text{NH}_3$  and ammonium salts measured as  $\text{NH}_3$  from each HRSG exhaust stack shall not exceed 5 parts per million on a volumetric basis (ppmdv) over a one hour average when corrected to 15.0 percent oxygen. Daily emissions of free  $\text{NH}_3$  and ammonium salts measured as  $\text{NH}_3$  from either HRSG stack exhaust shall not exceed 173 kilograms (382 pounds).
  - 2.1 Initial compliance for each turbine shall be determined by Bay Area Air Quality Management District Source Test Procedure ST-1B, "Ammonia, Integrated Sampling",

or an equivalent method approved in advance by EFSEC. Source test samples must be unfiltered as taken from each stack.

- 2.2 Source testing must be conducted annually for the first three years following initial startup to demonstrate continued compliance. Initial startup for each combustion turbine is defined as the time when the first electricity from that turbine is delivered to the electrical power grid. Testing thereafter will be once every three years if the initial performance and subsequent tests satisfy permit limits. Failure of any source test to meet permit limits starts the three year annual test cycle over.
  - 2.3 Coincident ammonia consumption and fuel use shall be recorded daily and reported monthly. The initial and first three years' source tests shall be used by EFSEC to establish a base line relating the ammonia-consumption:fuel-use ratio to ammonia emissions. EFSEC or its delegated compliance agent may require ammonia source testing at any time that this relationship indicates ammonia emissions may be exceeding the permit limitation.
3. Opacity from each exhaust stack of the project shall not exceed 10 percent over a six minute average as measured by EPA Reference Method 9, or an equivalent method approved in advance by EFSEC. Opacity from each stack shall be measured and recorded by continuous emissions monitoring systems (CEMS). Each CEMS shall satisfy the requirements contained in 40 CFR, Part 60, Appendix B, Performance Specification 1 and 40 CFR, Part 60, Appendix F, Quality Assurance Procedures.
4. No HRSG stack exhaust shall contain CO emissions that exceed 2.0 parts per million on a dry volumetric basis (ppmdv) over a one hour average when corrected to 15.0 percent oxygen. No HRSG stack exhaust shall exceed annual CO emissions of 49.9 tons.
  - 4.1 Initial performance and compliance for each turbine shall be determined by EPA Reference Method 10 modified to use nondispersive infrared (NDIR) with gas filter correlation, and following the calibration and operation guidelines of EPA Reference Method 6C. The NDIR must have performance specifications allowing a minimum detectable sensitivity of 1 ppmdv with accuracy within +/- 0.5 ppmdv. The span and linearity calibration gas concentrations in Method 10 shall be appropriate to the CO



concentration limits specified in this condition. Equivalent concentration test methods may be used if approved in advance by EFSEC.

- 4.2 Mass emission rates shall be determined using the procedures outlined in 40 CFR part 60 Appendix A Method 19, adapted to CO. Equivalent mass emission rate calculation methods may be used if approved in advance by EFSEC.
  - 4.3 CO emissions from each exhaust stack shall be measured and recorded by CEMS that meet the requirements of Prevention of Significant Deterioration Approval Condition 15.1. Such CEMS shall be used to determine compliance with this Condition.
5. Emission limits for CO during startup and shutdown:
- 5.1 Startup and shutdown shall be defined as in Approval Condition 11 of the Prevention of Significant Deterioration permit for SE2GF.
  - 5.2 For purposes of compliance with CO emission limits, startup or shutdown operation exists only when the combustion catalyst system is below the normal operating temperature range indicated by the manufacturer's operating manual.
  - 5.3 No HRSG stack exhaust shall exceed hourly CO emissions of 909 kilograms (2,000 pounds).
  - 5.4 The continuous emissions monitor (CEM) for CO shall be operated during startup and shutdown periods. Total mass emissions as determined from the CEM readings shall be included in determination of compliance with the annual CO mass emission limit in Condition 4.
6. Ammonia consumption and fuel use data and opacity observations shall be reported in written form to the authorized representative of EFSEC within thirty days of the end of each calendar month (unless a different report form/format, and reporting schedule has been approved by EFSEC).
7. For each opacity observation in excess of the standard, the monthly report (per Notice of Construction Approval Condition 4) shall include the following:
- 7.1 The time of the occurrence.
  - 7.2 Magnitude of the emission or process parameters excess.

- 7.3 The duration of the excess opacity.
- 7.4 The probable cause.
- 7.5 Corrective actions taken or planned.
- 7.6 Any other agency contacted.

This Notice of Construction Approval has been Reviewed by:

\_\_\_\_\_  
Bernard Brady, P.E.  
Engineering and Technical Services  
Washington Department of Ecology

\_\_\_\_\_  
Date

This Notice of Construction Approval has been Approved by:

\_\_\_\_\_  
James Oliver Luce  
Chair  
Energy Facility Site Evaluation Council

\_\_\_\_\_  
Date

APPENDIX A  
SUMMARY OF EMISSION LIMITATIONS for PSD EFSEC/2001-02, Amendment 1

EMISSIONS LIMITS <sup>1</sup>					
SUMAS ENERGY 2 GENERATION FACILITY					
COMBUSTION TURBINE WITH DRY LOW NO <sub>x</sub> TECHNOLOGY, SELECTIVE CATALYTIC REDUCTION, AND OXIDATION CATALYST (PER TURBINE)					
Pollutant		Limit	Averaging Time	Test Method (or equivalent approved by EFSEC)	Stack Testing or Certification Frequency
NO <sub>x</sub> @ 15% O <sub>2</sub>		2.0 ppmdv	3 hour	RM 20 and CEMs	Initial
		395 lbs/day	daily		
		The above NO <sub>x</sub> limits are relieved during startup and shutdown.			
		72 tons/year	Annual		
CO @ 15% O <sub>2</sub>		2.0 ppmdv	1 hour	RM 10 and CEMs	Initial
		49.9 tons/year	annual		
		The above CO limits are relieved during startup and shutdown.			
		Startup and shutdown: 2,000 lbs./hr.	1 hour		
SO <sub>2</sub> @ 15% O <sub>2</sub>		1.0 ppmdv	1 hour	RM 6 and fuel monitoring	Initial
		The above SO <sub>2</sub> limit is relieved during startup and shutdown.			
		189 lbs/day	daily		
PM <sub>10</sub>	Filterable	194 lbs/day	daily	RM 201 or 201A	Initial, annual for 3 years, once per three years thereafter as long as in compliance
		The above filterable PM <sub>10</sub> limit is relieved during startup and shutdown			

EMISSIONS LIMITS <sup>1</sup>						
SUMAS ENERGY 2 GENERATION FACILITY						
COMBUSTION TURBINE WITH DRY LOW NO <sub>x</sub> TECHNOLOGY, SELECTIVE CATALYTIC REDUCTION, AND OXIDATION CATALYST (PER TURBINE)						
Pollutant		Limit	Averaging Time	Test Method (or equivalent approved by EFSEC)		Stack Testing or Certification Frequency
PM <sub>10</sub>	Condens-able	377 lbs/day	daily	RM 202		Initial, once every three years
		The above condensable PM <sub>10</sub> limit is relieved during startup and shutdown.				
	Total	Startup and shutdown: 573 lbs/day	daily	RM 201 (or 201A) and 202		Parametric as described in PSD Approval Condition 11.6.2
VOC		420 lb/day (as methane)	daily	RM 18		Initial, annual for 3 years, once per three years thereafter as long as in compliance. Determined parametrically during startup and shutdown as described in PSD Approval condition 11.5.1
Sulfuric Acid Mist		39 lbs/day	daily	RM 8		Initial, annual for 3 years, once per three years thereafter as long as in compliance
Ammonia		5 ppm <sub>dv</sub>  382 lbs/day	1 hour  daily	by BAAQMD Source Test Procedure ST-1B		Initial, annual for 3 years, once per three years thereafter as long as in compliance
Opacity		10%	6 minute	6 minute (one daily reading)	RM 9 and COMS	Initial and 6 month reader certification

1. This table is a summary of the permit's conditions. If there is a conflict between this table and a permit provision, the written permit provision takes precedence.